



## COLD-WATER DELUGE

### OBJECTIVE & STRATEGY

CWD

The objective of Cold-water Deluge is to use high volume/low-pressure water flow to wet the surface of a shoreline segment. If there is no previous oil impact, the wetting will prevent oil from adhering to the shoreline. Flooding the beach segment may actually raise the water-table, thus lifting any oil from the sediment. Cold-water Deluge is most effective when deployed before oil impact. If oil has impacted a shoreline segment, Cold-water Deluge may be used as a clean-up technique. In this case the oil is washed down slope to the water and recovered.

The general strategy is to:

1. Identify the location and trajectory of the spill or potential spill.
2. Select equipment and a configuration that best supports the operating environment.
3. Deploy equipment and personnel to the location.
4. Set up equipment and begin operations.
5. Utilize an appropriate recovery tactic if oil has impacted the shoreline and is being remobilized.
6. Monitor the pumps and water flow to ensure that sufficient flow is maintained.

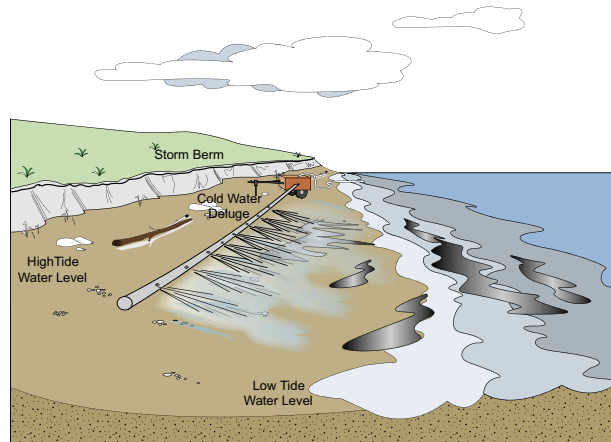


Figure CWD-1. Cold Water Deluge in protection mode.

### TACTIC DESCRIPTION

Cold-water deluge systems consist of high volume/low pressure pumps, intake hoses, perforated discharge hoses or pipes and associated hardware. Generally a large diameter perforated header hose/pipe is laid parallel to the water at the high tide line. Using high volume/low pressure pumping systems, a large amount of ambient seawater is then pumped through the hoses and washed down the beach. These systems are configured depending

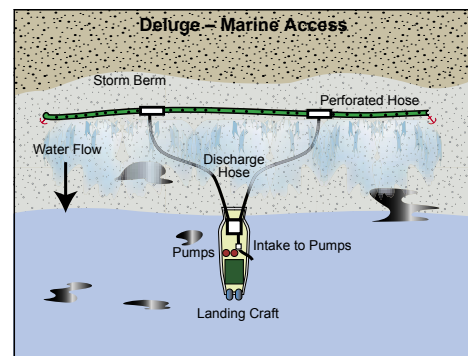


Figure CWD-2. Aerial view of a deluge configuration marine access.

## Cold-Water Deluge



on the operating environment, type of beach material, type of oil, the state of oil weathering, and available equipment.

### Operating Environments

Cold-water Deluge is used in the Shoreline operating environment.

### Deployment Configurations

Cold-water Deluge is recommended for use on beaches with a substrate coarser than sand and on low angled rocky shorelines. In clean-up mode, boom is deployed around the flooded area to ensure that oil is captured for recovery.

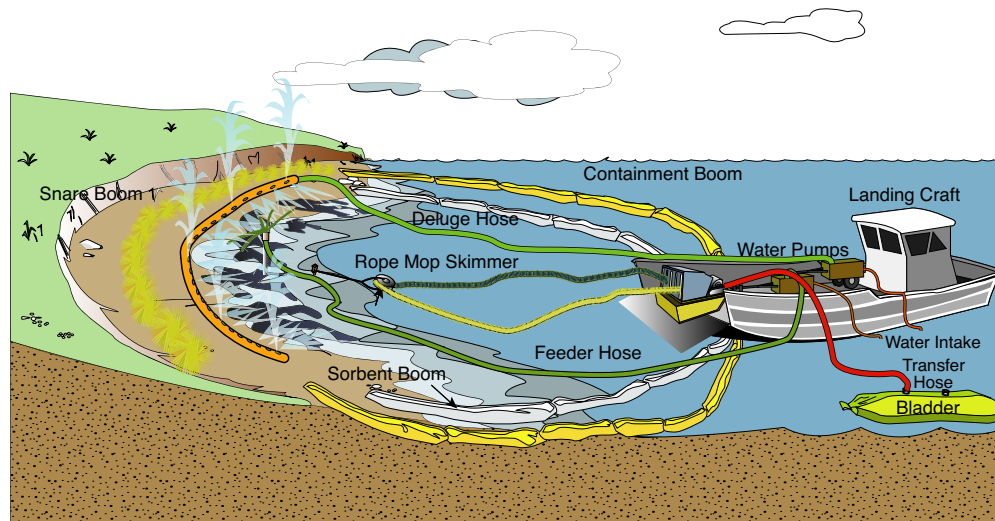


Figure CWD-3. Cold-water Deluge in clean-up mode.

## DEPLOYMENT CONSIDERATIONS AND LIMITATIONS

### SAFETY

- Daily fair and foul weather evaluations are recommended.
- Consideration should be given to surf.
- High concentration of brown bears. Consider using bear guards.




### DEPLOYMENT

- On beaches with rich inter-tidal areas, deluge should be used during periods when the rich area is submerged.
- Cold-water Deluge is generally not recommended for fine grained sand, mud, vegetated, or steep rocky shorelines.
- Remobilized oil should be recovered during operations.



**REFERENCES TO OTHER TACTICS**

Other tactics associated with Cold-water Deluge include:

-  • Shoreside Recovery
-  • Marine Recovery
-  • Diversion Boom and Recovery

**EQUIPMENT AND PERSONNEL RESOURCES**

Resources for the Cold-water Deluge tactic include pumps, suction hose, discharge hose, perforated header hose/pipe, and response personnel. Configuration and specific resources required will be determined by site conditions, spilled oil type and volume, area of coverage, and resource availability. Resource sets may need to be refined as site-specific requirements dictate.

Equipment	Function	Quantity	Notes
Pumps	Moving seawater	Site-specific	Depending on configuration and length of beach
Suction hose	Moving ambient seawater to the pump	Site-specific	Depending on configuration and distance from water to high tide line
Discharge hose	Moving ambient seawater from the pump to the perforated header	Site-specific	Depending on configuration and distance from water to high tide line
Perforated header hose/pipe	Supply water along the length of the beach	Site-specific	Depending on the length of beach being addressed
Personnel	Function	Quantity	Notes
Field Team Leader	Supervises operations	1	
Skilled Technicians	Operate response equipment	1 to 2	Depending on number of pumps and configuration
General Technicians	Work under the direction of skilled technicians	2 to 4	Depending on configuration

